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represented, which I here notice, as Mr. Chambers says that amongst the designs on the crosses ‘there does not appear the ordinary representation of the Blessed Virgin with the Holy Child in her arms, nor, we believe, is it to be found in Ireland.’ On several of the crosses also, as that at Moore Abbey, is the flight into Egypt represented, the Blessed Virgin holding the Child in her arms, as usual. Another group of figures common on the Irish crosses appears to me also to have been mistaken, as to its design, by Mr. Chambers. I allude to that of a figure standing with several animals on each side, from head to foot, ready to tear him. Mr. Chambers considers this to represent our Saviour attacked by fierce wolves or dogs—(‘Many dogs came about me, they gape upon me as a roaring lion.’) It appears to me to be rather intended for a representation of Daniel in the lion’s den.

“I remain, my dear Sir, yours very truly,

“JNO. O. WESTWOOD.

“*The Rev. Dr. Todd.*”

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Sir W. R. Hamilton communicated extracts from two letters which he had lately received on the subject of the last bright comet, from Mr. Andrew Graham, Astronomical Assistant in the Observatory of E. J. Cooper, Esq., at Markree, and discoverer of the planet Metis :—

“*Markree Observatory, Collooney,*

“*28th April, 1854.*

“Your observations of the comet have come to hand to-day. They will be to me valuable, as I hope to find leisure for further researches on the orbit. Last night was cloudy, and, having made some previous preparations, I was tempted to obtain a second approximation to the elements. At half an hour past midnight I obtained a very satisfactory verification. The observations selected were those made at Markree, March 30th, and April 15th, and at Paris, April 7th, viz. :—

1854.	Greenwich Mean Time.	Appar. $\alpha$ .	Appar. $\delta$ .
March 30	·369639	1 <sup>h</sup> 22 <sup>m</sup> 27 <sup>s</sup> ·34	+ 19° 37' 14"·3
April 7	·324534	3 7 57·46	13 17 3·9
„ 15	·371142	4 13 16·36	5 44 2·4

The corrections for aberration and parallax were obtained by the aid of my first set of elements, which, as it happens, appear to be unexpectedly near the truth. To save you the trouble of reference, I here place the two sets side by side.

	First Approx. Greenwich M. T.	Second Approx.
T March	24·01183	March 24·01376
$\pi$	214° 3' 27"	213° 50' 8"·9
$\Omega$	315 34 50	315 28 16·1
$i$	82 42 26	82 30 17·4
log $q$ .	9·44192	9·442544
	Retrograde.	Retrograde.

“The second set of elements are referred to the mean equinox of April 0·0. The most remarkable circumstance connected with them is, that the observations are *precisely* represented by them: the correction of the calculated middle place, to reduce it to the observed, is

+ 0"·1 in longitude, and + 0"·3 latitude.

I do not recollect that in all my calculations I have ever known a parabolic orbit to agree so closely with the observations on which it was founded.

“You probably recollect that the first set of elements are founded on the Markree observations of March 30, April 1, and April 3.

“If you think these results worth laying before the Royal Irish Academy, at their next meeting, may I trouble you to do it? I can easily make the communication somewhat longer if you judge it necessary, by entering more into the details: but, perhaps, the whole affair may be too trifling to occupy a moment's attention. Is not the perfect coincidence

of the parabolic hypothesis with three complete observations very remarkable?"

"Markree Observatory, Collooney,  
"5th May, 1854.

"DEAR SIR,—A set of elements can hardly be regarded complete without the addition of the constants for facilitating the computation of the heliocentric co-ordinates. They are here subjoined,—

$$\begin{aligned}x &= a \sin (A + \nu) \sec^{\frac{1}{2}} \nu \\y &= b \sin (B + \nu) \sec^{\frac{1}{2}} \nu \\z &= c \sin (C + \nu) \sec^{\frac{1}{2}} \nu \\\log. a &= 9.2990850 + 20.0 d \\\log. b &= 9.3470892 - 12.4 d \\\log. c &= 9.4044724 - 2.8 d \\A &= 198^{\circ} 56' 54''.2 - 0''.25 d \\B &= 334 \quad 54 \quad 32 \cdot 5 - 0 \cdot 57 d \\C &= 82 \quad 53 \quad 25 \cdot 7 + 0 \cdot 28 d\end{aligned}$$

1854.	Greenwich Mean Time.	Values of $d$ .	
T = March	24.01376	March 22,	- 0.77
			1.04
$\log \frac{1}{q^{\frac{1}{3}}} =$	0.8361840	April 1,	+ 0.27
			1.08
		11,	+ 1.35
			1.19
$\log m =$	0.7963117	21,	+ 2.54

$\nu$  = True anomaly.

$m$  = Mean daily motion, if Barker's table be used.

$q$  = perihelion distance.

T = time of perihelion passage.

"The longitude of the ascending node was diminished  $16''$ , in deducing the constants from the elements: this referred the axis of  $x$  nearly to the *apparent* equinox of March 31; the small equations annexed will reduce precisely to the ap-

parent equinox of the date. The coefficients of  $d$  after  $\log a$ , &c., have for unit the seventh decimal place. The obliquity of the ecliptic has been assumed invariable, and equal to  $23^{\circ} 27' 34''.6$ .

“ It appeared to us that the diminution of the comet’s light was much more rapid than theory would indicate. On March 30, it shone as a good second magnitude star ; on April 15 certainly not more than ninth ; at least, such was Mr. Cooper’s impression\* as well as my own. A comparison of the distances from the earth and sun, at these two dates, gives the light on April 15, 6.4 times less than that on March 30, which would be perhaps equal to that of a star of fifth or sixth magnitude. I am not aware that this circumstance has been noticed with regard to the present comet, and therefore venture to direct attention to it as having an important bearing on the physical theory of these remarkable bodies.

“ One is still disposed to sift the probability of a collision with the earth or one of her sister planets. We are certainly out of harm’s way so far as this comet is concerned. It was in ascending node on March 1, at  $22^{\text{h}} 13^{\text{m}}$ , astronomical mean time at Greenwich. Distance from the sun, 66,193,000 miles ; therefore, 3,259,000 miles within the orbit of Venus. It was then nearly 157 millions of miles from us. It was in descending node April 4<sup>d</sup>  $22^{\text{h}} 46^{\text{m}}$ . Distance from the sun, 43,973,000 miles ; nearly 12 millions of miles without the orbit of Mercury. It was then nearly 83 millions of miles distance from the earth. The comet was in perigee April 1<sup>d</sup>  $8^{\text{h}}$  ; distance, 80,600,000 miles.

“ The only thing worthy of notice, with regard to the computations, is, that in correcting the elements Laplace’s method failed. The cause is easily explained. For the middle time the angle at the comet, formed by lines drawn to the

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\* Such, Sir W. R. Hamilton stated, was also the impression of his Assistant, Mr. Charles Thompson, and his own, on the evening above referred to.

earth and sun, was nearly right, so nearly that an increase of one-tenth of a day in the perihelion passage gave an impossible value for the sine of this angle. The orbit and all the circumstances were particularly favourable for Newton's method ; which was, therefore, applied with considerable modifications.

"Without a complete discussion of all the observations the result cannot be regarded as final. It is, therefore, needless to dwell upon the subject, at present, to any greater length. Part of what is here inserted may be too commonplace to bring before the Academy. You will oblige me by pruning as you judge proper.

"The rate of motion at the perihelion was fifty-one miles per second.

"With sincere thanks for your kind encouragement,

"I am very truly yours,

"ANDREW GRAHAM.

"*Sir W. R. Hamilton,*

*&c., &c."*

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The Rev. Charles Graves made the following communication on the comparison of adjectives in the ancient Irish language :—

"The most eminent Irish grammarians have constantly denied the existence of a superlative form, as distinguished from the comparative. I was, therefore, surprised to find some undoubted instances of the use of a distinct superlative form occurring in an ancient Irish tract, in the study of which I was engaged more than two years ago; and since then I have continued to collect such other examples of this kind as I met with, intending to bring the subject under the notice of the Academy.

"On looking, however, to the 'Celtic Grammar,' lately published by Professor Zeuss, I found that I had been anticipated by that learned and accurate scholar in the statement of this fact. He shows that in the old Welsh language there was a superlative ending in *am*, of which he adduces *hinham*,